

106/90

NO 113

BY

11/7/82

BY

4,357,166

United States Patent [19]**Babcock**[11] **4,357,166**[45] **Nov. 2, 1982**

[54] **METHOD AND COMPOSITION FOR CONTROLLING VOLUME CHANGE IN FAST SETTING, FLUID IMPERMEABLE CEMENTITIOUS SYSTEMS**

[75] Inventor: **Warner K. Babcock**, Stamford, Conn.

[73] Assignee: **Construction Products Research, Inc.**, Old Greenwich, Conn.

[21] Appl. No.: **262,175**

[22] Filed: **May 11, 1981**

[51] Int. Cl.³ **C04B 7/02**

[52] U.S. Cl. **106/89; 106/90; 106/104**

[58] Field of Search **106/104, 90, 89**

[56] **References Cited**

U.S. PATENT DOCUMENTS

2,339,163	1/1944	Friedlaender et al.	106/104
3,147,129	1/1964	Armstrong et al.	106/109
3,775,143	11/1973	Mikhailov et al.	106/104
3,826,665	7/1974	Hovasse et al.	106/104
3,861,929	1/1975	Deets et al.	106/104
3,922,172	11/1975	Crinkelmeyer et al.	106/104
3,997,353	12/1976	Chervenka et al.	106/104
4,012,264	3/1977	Murray et al.	106/104
4,045,237	8/1977	Gaines et al.	106/104

4,157,263 6/1979 Gaines et al. 106/104

4,216,022 8/1980 Wilson 106/104

Primary Examiner—James Poer

Attorney, Agent, or Firm—Pennie & Edmonds

[57]

ABSTRACT

A cementitious composition which, when mixed with water, is capable of setting rapidly into a hard mass of high compressive strength without substantial shrinkage during setting, and having reduced wet and dry volume changes in the hardened state comprises aluminous cement, gypsum, a drying shrinkage inhibitor and a wet expansion inhibitor. The wet expansion inhibitor is a lithium salt which may be added in an effective amount ranging between 0.01 to 0.5 percent, by weight, based on the aluminous cement and gypsum and preferably between 0.1 and 0.3 percent. It is preferred to employ between 60 and 90 percent, by weight, aluminous cement and between 10 and 40 percent, by weight, gypsum. The hardened drying shrinkage inhibitor, preferably Portland cement, is added in an amount ranging between 0.1 and 25 percent, by weight, based on the aluminous cement and gypsum, and preferably between 1 and 20 percent.

20 Claims, No Drawings